

(21) Application No 9114801.5

(22) Date of filing 09.07.1991

(30) Priority data

(33) Priority Date

(32) 18.12.1990 (33) GE

(71) Applicant

(Incorporated in the United Kingdom)

**Unit 31, Hortonwood 33, Telford, Shropshire, TF1 4ES,
United Kingdom**

(72) Inventor

(74) Agent and/or Address for Service

Forrester Ketley & Co
Chamberlain House, Paradise Place, Birmingham,
B3 3HP, United Kingdom

(51) INT CL⁵

(52) UK CL (Edition K)
E1J JGD

(56) Documents cited
GB 2220020 A EP 0114218 A2 EP 0053104 A1
WO 91/10801 A1 WO 87/05657 A1

(58) Field of search
UK CL (Edition K) E1J JDK JGA JGD JGE
INT Cl⁶ F06B

(54) Wood clad metal frame members

(57) A frame member 11 for an architectural assembly such as a window or door comprises a metal element 12, 20 having a wooden covering element 18, 27 provided on at least one surface thereof, to conceal the surface when an assembly including the frame member is installed in a building. The covering element may be in the form of a block, as in the figure shown, or an adhesively secured veneer (57, figure 2).

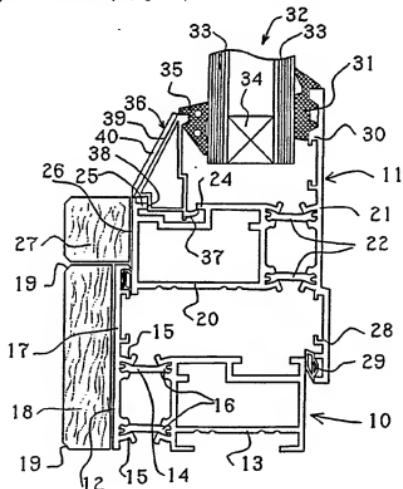


FIG 1

GB 2251 645 A

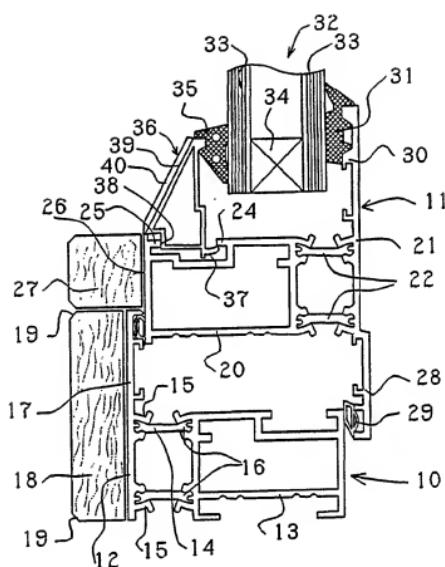


FIG 1

2 / 2

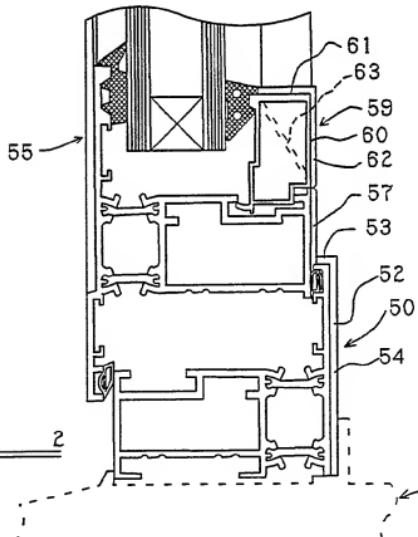
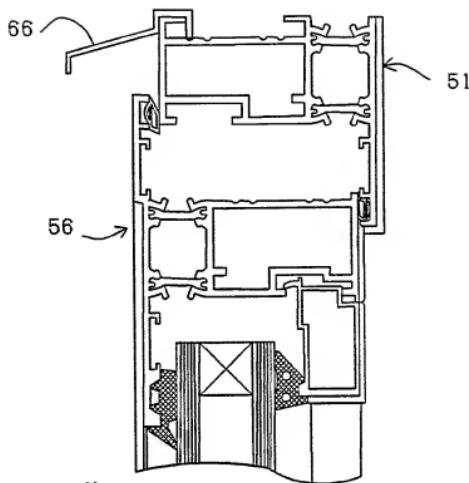


FIG 2

Title: Frame members for architectural assemblies

Description of Invention

This invention relates to frame members for use in architectural assemblies. Examples of architectural assemblies wherein frame members according to the invention are usable are openable panel assemblies such as windows and doors, fixed lights, and curtain walling, but the invention is applicable to any architectural assembly having a frame with a frame member or members which is or are visible when the assembly is incorporated or installed in a completed building.

Frame members made by extrusion of an aluminium alloy are widely used for doors, windows and the like in both domestic and commercial or industrial buildings. The mechanical properties of such frame members are beneficial, for example they are weather resistant, rot-proof, are able to be anodised or coated to provide a wide range of finishes, and are strong and usable with ancillary components of suitable quality to provide assemblies which will withstand exposure to severe conditions.

Despite these advantages, however, the appearance presented by assemblies incorporating such aluminium frame members lacks the aesthetic quality of traditional wooden frame assemblies. A wooden frame assembly also has an attractive warmer and more traditional "feel".

It is therefore the object of the present invention to provide a frame member which incorporates at least some of the above referred to advantages of extruded aluminium alloy frame members in respect of its durability and structural properties, but which nevertheless presents the desirable appearance and "feel" of a wooden frame member.

According to the invention, therefore, we provide a frame member for an architectural assembly, comprising a metal element provided with a covering

element of wood on at least one surface thereof, to conceal said at least one surface.

The metal element may be an extrusion of aluminium or an alloy thereof.

The covering element may be a wooden lamina or veneer. Alternatively it may be a non-laminar wooden element (i.e. of greater thickness than a veneer), in which case its cross-sectional shape may be selected to provide any desired aesthetic or functional characteristics.

The wooden covering element may be secured to the metal element by any suitable known method. In the case where the wooden covering element is a veneer, a suitable adhesive may be utilised in any appropriate manner.

When the wooden covering element is of thicker cross-section than a veneer, adhesive may be used to secure it to the metal element. Alternatively, or in addition, fasteners, for example screws, may be used. Yet a further possibility is that the metal element and wooden covering element may have cross-sectional shapes such that they interfit with one another to secure them together. Such cross-sectional shapes may afford formations such that the elements can be assembled to each other by engaging the formations with each other and then sliding the elements lengthwise relative to one another to engage such formations along the whole length of the frame member. Alternatively formations arranged to provide a clip or snap fastening between the elements may be provided.

The metal element of the frame member may be of the type generally known as a thermal break element. Such an element incorporates respective portions which lie to the interior and exterior of a building in which it is to be installed, which portions are separated from one another by a thermally insulating means. Such a thermally insulating means may be of a plastics material engaging the respective portions of the metal element in such a way as to secure them to one another. The metal element may, of course, alternatively be entirely of metal, i.e. not of the thermal break type.

The invention thus provides a frame member which incorporates the structural advantages of extruded aluminium frame members as above referred to, but which incorporates the aesthetic advantages of a wooden frame member. The wooden covering element in a frame member according to the invention improves the thermally insulating qualities of the frame member so that if the metal element is itself of the thermal break type, an enhanced degree of thermal insulation is obtained.

The architectural assembly for which the frame member is intended for use may be an openable panel assembly, e.g. a casement window, in which frame members according to the invention may provide both the fixed peripheral frame and the openable frame of the assembly. A non-openable window may have frame members according to the invention. Glazing bead members of a window may also be frame members according to the invention.

When an architectural assembly including frame members according to the invention is installed in a building, the or each covering element is preferably provided at the interior of the building.

The invention will now be described by way of example with reference to the accompanying drawings, of which:-

Figure 1 is a section through part of the frame of a casement window incorporating frame members according to the invention;

Figure 2 is a section through another casement window incorporating frame members according to the invention.

Referring firstly to Figure 1 of the drawings, this shows part of the frame of a casement window. It comprises a frame member 10 which forms part of the peripheral frame of the window which is or will be fixed to the structure of the building in which the window is installed. A frame member 11 forms part of the opening casement frame of the window, connected to the fixed frame of the window by suitable hinge devices to provide for pivotal opening of the window. The casement frame carries a glazing panel secured by a removable glazing bead member, to be described in greater detail hereafter.

The fixed frame member 10 comprises a metal element with a box section portion 13 which is an extrusion of aluminium or an alloy thereof, hereinafter referred to for convenience simply as aluminium. The metal element of the frame member 10 further incorporates a wall portion 12 which also is an aluminium extrusion, and which is connected to the box section portion 13 by a pair of rigid plastics elements 14 engaging undercut formations 15, 16 in the portions 12, 13 respectively. Thus the metal element of the frame member 10 is of the "thermal break" type, the plastics elements 14 providing a rigid connection between the portions 12, 13 of the element but providing thermal insulation therebetween so that heat flows less readily between the interior and exterior of a building in which the window is installed, compared with if the elements were entirely of aluminium. A thermal break frame member is, when the weather conditions outside the building are cold, less cold at the interior of the building than a non-thermally broken member and thus suffers less from condensation.

The intended installation in a building is such that the wall portion 12 of the metal element of the frame member 10 lies to the interior of the building, and a planar surface 17 of the portion 12, which would be accessible if it were not covered, has a covering member 18 of wood thereon. The covering member 18 is generally rectangular in cross-sectional shape with bevelled corners 19, and is secured to the portion 12 by a suitable adhesive applied in known manner therebetween and/or by fasteners such as screws, not shown.

The frame member 11 forming part of the openable casement frame of the window has a metal element which comprises a box section portion 20 and a portion 21, which portions are extrusions of aluminium and are secured together by plastics elements 22 in the same manner as the portions 12, 13 of the metal element of the frame member 10 are secured together, so that the metal element of the frame member 11 is also of the thermal break type. The cross-sectional shape of the box section portion 20 includes a recess 23 which is of undercut configuration having a flange formation 24 opposed to a lip 25. A planar surface 26 of the box section portion 20 has secured thereto a covering element 27 of

wood. The covering element 27 is secured to the box section portion 20 by adhesive and/or fasteners, and has bevelled edges, as is the case for the covering element 18.

The portion 21 of the frame member 11 has a part 28 which extends into the vicinity of the box section portion 13 of the frame member 10 and which carries an elastomeric seal 29 engageable with the portion 13 when the window is closed. The portion 21 further has a part 30 with a formation which holds captive an elastomeric gasket 31 which provides a seating for a glazing panel 32. The glazing panel 32 is a conventional double glazed panel comprising panes of glass 33 with a spacer 34 therebetween forming a sealed unit.

The glazing panel 32 is held between the captive gasket 31 and a gasket 35 which is inserted between the glazing panel and a glazing bead member 36. The glazing bead member 36 is generally triangular in configuration, with a foot 37 engaging beneath the flange 24 bounding part of the recess 23, and a formation engaged beneath the lip 25. The engagement of the foot 37 with flange 24 and the formation 38 with the lip 25 is such that, in generally known manner, when the gasket 35 is not present the glazing bead member is removable and can be introduced into its position, but when the gasket 35 is fitted the glazing bead member is held firmly in engagement with the portion 20, and the glazing panel is held firmly between the gaskets 31, 35.

The glazing bead member 36 is also a frame member according to the invention, and comprises a metal element of extruded aluminium with a surface 39 bearing a covering element 40 which in this case is a wood veneer, of appearance matching the wooden covering elements 27 and 18. The covering element 40 is secured to the surface 39 by adhesive. Alternatively, if desired, the glazing bead member 36 could be provided, as for the frame members 10, 11, with a wooden covering element of greater thickness than a veneer.

Referring now to Figure 2 of the drawings, this shows the frame members at both the top and bottom of a casement window. At the bottom of the window the fixed peripheral frame of the window comprises a frame member

50 and at the top of the window it comprises a frame member 51. The frame members 50, 51 are of the same cross-sectional shape as one another (although in the drawing they appear in mirror image) and each comprises a thermal break metal element of the same configuration as described above in relation to the frame member 10 in Figure 1 and a wooden covering element. In this embodiment, however, instead of the covering element 18 of wood, on the surface 17 of the part 12, the corresponding part of the metal element of each frame member 50, 51 has its otherwise accessible surface 54 provided with a covering element 52 of wood veneer, secured by adhesive. The covering element 52 extends, at 53, around the edge of the metal element of the frame member.

The opening casement of the window comprises bottom and top frame members 55, 56 with thermally broken metal elements which are of the same configuration as the thermally broken metal elements of the frame member 11 in Figure 1. In this embodiment, however, the corresponding part of the metal element of the frame member 55 has a covering element 57 of wood veneer, rather than the thick wooden covering element 27 in the embodiment of Figure 1. The frame member 56 is provided with a wood veneer covering element in the same manner.

The frame members 55, 56 receive a glazing panel 58 in the same manner as above described in relation to Figure 1. The removable glazing beads are, however, of different configuration: the glazing bead member (59) engaging the frame member 55 comprises a metal element in the form of a generally rectangular box section aluminium extrusion instead of the generally triangular section extrusion shown in Figure 1. The glazing bead member 59 engages the frame member 55 by formations the same as above described.

The metal element of the glazing bead member 59 has planar surfaces 60, 61 provided with a wooden veneer covering element 62 secured thereto by adhesive.

The glazing bead member cooperating with the frame member 56 at the top of the casement of the window is of the same cross-sectional shape as the

glazing bead member 59. Alternatively, both glazing bead members may be bevelled so as to be of somewhat triangular cross-sectional shape, as shown by the broken lines 63 for the glazing bead member 59.

Also visible in Figure 2 of the drawing is a sill structure indicated generally at 65 on which the frame member 50 rests and to which it is secured. Associated with the frame member 51 at the top of the window is a drip formation 66.

In both the embodiments of window above described, the frame members forming the fixed peripheral frame and the openable casement frame of the window, together with the glazing bead members, are all frame members according to the invention. Thus, they comprise metal elements provided with wooden covering elements on surfaces which would otherwise be accessible if the covering elements were not present. Towards the interior of the building, the frame members thus present the appearance and "feel" of traditional wooden frames, but retain the structural advantages of thermally broken metal frames, and indeed provide enhanced thermal insulation due to the insulating properties of the wooden covering elements. If the metal frame element is not thermally broken, the covering element provides a degree of thermal insulation.

Although described above in relation to casement windows, the invention is also applicable to other architectural assemblies, examples of which are fixed lights, curtain walling systems, low rise framing systems.

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

CLAIMS

1. A frame member for an architectural assembly, comprising a metal element provided with a covering element of wood on at least one surface thereof, to conceal said at least one surface.
2. A frame member according to Claim 1 wherein the metal element is an extrusion of aluminium or an alloy thereof.
3. A frame member according to Claim 1 or Claim 2 wherein the covering element is a wood veneer.
4. A frame member according to Claim 1 or Claim 2 wherein the covering element is a non-laminar wooden element.
5. A frame member according to any one of the preceding claims wherein the covering element is secured to the metal element by adhesive.
6. A frame member according to any one of the preceding claims wherein the covering element is secured to the metal element by mechanical fastening means.
7. A frame member according to Claim 6 wherein the mechanical fastening means comprises fasteners such as screws.
8. A frame member according to Claim 6 wherein the mechanical fastening means comprises interfitting formations on the metal element and covering element.

9. A frame member according to any one of the preceding claims wherein the metal element of the frame member is of the thermal break type.
10. A frame member according to any one of claims 1 to 8 wherein the metal element of the frame member is entirely of metal.
11. A frame member according to any one of the preceding claims which is adapted to form part of the peripheral fixed frame of an openable panel assembly.
12. A frame member according to any one of Claims 1 to 10 which is adapted to form part of the openable frame of an openable panel assembly.
13. A frame member according to claim 11 or claim 12 wherein the openable panel assembly comprises a casement window.
14. A frame member according to any one of Claims 1 to 10 which is adapted to form a glazing bead member.
15. A frame member according to any one of Claims 1 to 10 which is adapted to form part of a curtain walling system.
16. A frame member according to any one of claims 1 to 10 which is adapted to form part of the frame of a fixed light.
17. A frame member substantially as hereinbefore described with reference to the accompanying drawings.
18. An architectural assembly having a frame comprising at least one frame member according to any one of the preceding claims.

19. A building incorporating an architectural assembly according to Claim 18 wherein the or each said covering element is provided at the interior of the building.

20. Any novel feature or novel combination of features described herein and/or in the accompanying drawings.

Relevant Technical fields		Search Examiner
(i) UK CI (Edition K)) E1J: JGA, JGE, JGD, JDK	
(ii) Int CI (Edition 5)) E06B	J ROWALTT
Databases (see over)		Date of Search
(i) UK Patent Office		
(ii)		30 MARCH 1992

Documents considered relevant following a search in respect of claims

1-19

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2220020 A (BKL EXTRUSIONS) - see especially page 1, paragraph 2	1-3, 5, 9-19
X	EP 0114218 A2 (SCHUCO) - see wood battens 10	1, 2, 4-19
X	EP 0053104 A1 (MATAUSCHEK) - see wood batten 8	1, 2, 4-19
X	WO 91/10801 A1 (GASSER) - see wood batten 8	1, 2, 4-19
X	WO 87/05657 A1 (OBEROSLER) - see wood batten C	1, 2, 4-19



Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

& Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).